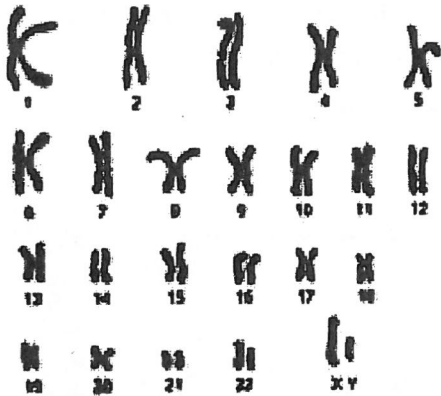


Chromosomes and Karyotypes

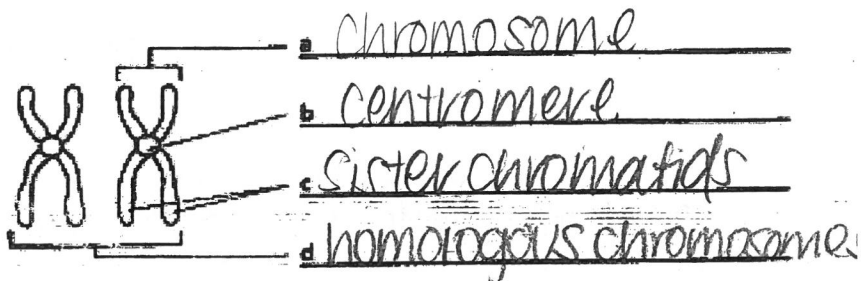
1. Define autosome. determine all traits except sex chromosomes 1-22
2. What are the 2 kinds of sex chromosomes? X and Y
3. Define diploid. cells with the full set of chromosomes 46 chromosomes
4. Define haploid. cells with 1/2 the total number of chromosomes 23 chromosomes
5. Humans have 46 chromosomes **total** in all somatic (body/tissue) cells. How many of these chromosomes are autosomes? 44
6. If an organism has a diploid number of 16, how many chromosomes will be found in one of its skin cells? 16
7. If an organism has a diploid number of 20, how many chromosomes will its sex cells have? 10
8. During cell division, the DNA in a eukaryotic cell is tightly packed and organized into structures called chromosomes.



Answer questions 9-13 using the diagram to the left.

9. What is the picture to the left called? karyotype
10. How many total pairs of chromosomes do you see? 23
11. How many total autosomes are there? 44
12. How many total sex chromosomes are there? 2
13. What is the sex of the organism? male

14. The diagram to the right shows structures isolated from the nucleus of a eukaryotic cell dividing. Label each structure or pair of structures in the spaces provided.



KARYOTYPE A

Answer questions 15-20 based on

Karyotype A.

15. How many **pairs** of chromosomes do you see? 23

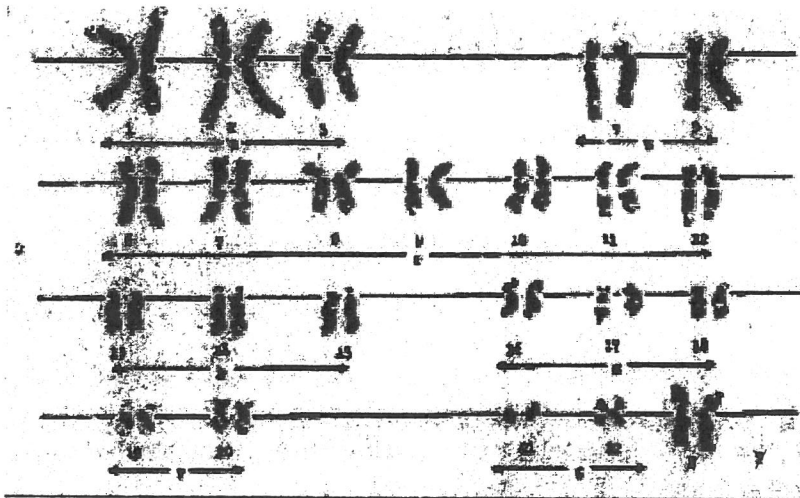
16. What is the sex of this organism?
female How do you know?
there are two X's

17. If you start with chromosome number 1 and go until chromosome number 22 you will see a trend in size correlation. Describe this trend. the size decreases

18. How many chromosomes will be found in an egg cell from this individual? 23

19. What are these numbered **pairs** of chromosomes called? homologous chromosomes/autosomes

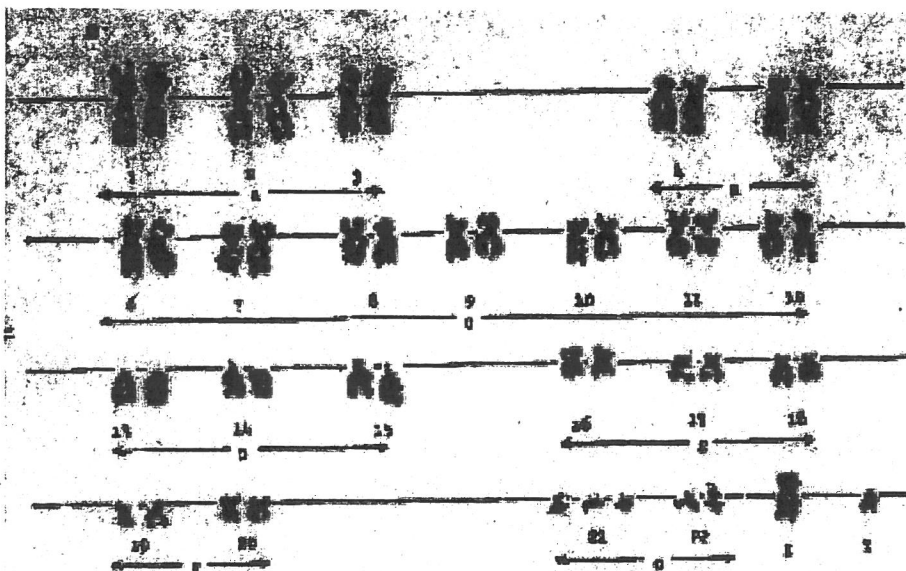
20. Every karyotype is specially named. This naming system is based on three things: 1) The number of chromosomes, example: 46. 2) The sex of the organism, example: XX. 3) And any extra chromosomes that would cause a genetic defect, example: +18. What is the name of this particular karyotype? 46 XX



KARYOTYPE B

Answer questions 21-26 based on

Karyotype B.



21. How many **pairs** of autosomes are there? 22

22. Are there any **TRISOMY'S** (three chromosomes instead of a pair) in this karyotype? yes If so, which chromosome pair is a trisomy? 21

23. How many pairs of sex chromosomes are there? 1

24. What is the sex of this organism? male

25. Describe the difference between the X and Y chromosomes. X is bigger than Y and has more genetic content

26. What is the name of this particular karyotype? 47 XY +21

3 instead of 2